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ABSTRACT

An alternative to monitoring instruction via standardized tests is proposed for objective-based individualized instructional programs. The set of behavioral objectives upon which the procedures are based is taken from the Wisconsin Design for Reading Skill Development. Procedures that can be computerized and applied to data from curriculum-embedded assessments and that are straightforward to use when the data is in matrix or keysort form are described. An application in reading is given, and the diagnostics made from the tabular and graphic summaries of the data are illustrated. It is pointed out that when used in conjunction with the setting of performance goals by the staff, the monitoring procedures assist the staff in focusing upon school-wide priorities and the feedback provided annually or at intervals through the school year is used to improve individualized instruction. Tables and graphs are included. (Author/DH)

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MONITORING THE PROGRESS OF THE GROUP IN AN INDIVIDUALIZED READING PROGRAM BASED ON BEHAVIORAL OBJECTIVES

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ABSTRACT

An alternative to monitoring instruction via standardized tests is proposed for objective-based individualized instructional programs. The procedures can be applied to data from curriculum-embedded assessments, and are straightforward to use when the data is in matrix or keysort form. Additionally the procedures are computerized. An application in reading is given, and the diagnostics made from the tabular and graphic summaries of the data are illustrated. When used in conjunction with the setting of performance goals by the staff, the monitoring procedures assist the staff in focusing upon school-wide priorities and the feedback provided annually or at intervals through the school year is used to improve individualized instruction.

MONITORING THE PROGRESS OF THE GROUP IN AN INDIVIDUALIZED READING PROGRAM BASED ON BEHAVIORAL OBJECTIVES

Monitoring group progress has traditionally been accomplished through the administration of standardized achievement tests. When the instructional program is based on behavioral objectives and each child progresses at a rate appropriate for him, the comparison of the mean of the group with established norms does not provide adequate information for assessing attainment of the specific objectives of the program. Another shortcoming is the lack of information useful in assessing differentiation in instruction for pupils of various characteristics, as indicated by variations in their achievement. Few systems for monitoring the progress of the group when the instructional program is based upon behavioral objectives have been proposed to replace or supplement standardized tests. One possible system that would utilize standardized test data to better advantage entails the analysis of specific content subscales which relate to the particular curriculum objectives. However, the content in such subscales often must be forced to "fit" the program objectives. The purpose of this presentation is to explain an alternative monitoring system inherent in a behavioral objective-based program and to illustrate diagnostics that can be found in it.

The set of behavioral objectives upon which the illustration is based is taken from the Word Attack component of the Wisconsin Design for Reading

Skill Development (the Design), a product of the Wisconsin Research and Development Center for Cognitive Learning. In this program, 45 objectives are arranged into four sets or levels (A through D) of progressive difficulty. It is presumed that upon attainment of all 45 discrete objectives the student will be able to decode independently structurally and phonically regular words and will know on sight common irregular words. The attainment of this terminal goal is anticipated as early as the end of the 4th year in school (Grade 3), or at some later point in the intermediate years. If the pupil is to attain the terminal goal at the expected time, it is necessary that he make regular progress during the primary and early intermediate years.

The procedure developed links attainment of the terminal goal with attainment of the discrete objectives and serves to focus staff effort on an educational priority by providing feedback on the progress of groups of pupils toward the terminal goal. The term "group" as used here will not refer to class-size groups but to all children at a particular age-grade level. Specifically, the procedures involve setting interim performance goals to be assessed on an annual basis. These interim goals are simply a target in terms of the average percent of skills to be mastered by children of similar characteristics. The characteristics used to stratify children for this analysis (not to group for instruction) may include IQ and/or reading achievement. Other information which is at hand and relevant, including teacher judgment, may serve to subdivide the pupils. In setting the target percentages for each subgroup, a school staff may at the outset be guided by the intentions of the program developers relative to the typical age-grade placement of particular skills. In the case of the Design, the development staff has indicated that Level A

corresponds to the content ordinarily introduced in Kindergarten, Level B in Grade 1, etc. The performance goals should also take into account the past performance of children in the school and reflect neighborhood and other environmental circumstances which affect the academic progress of individuals in the school.

A new school which adopts the Wisconsin Design for Reading follows this strategy: first, the test battery is given at the appropriate grade levels. The percentages of skills mastered are calculated for subgroups of children and compared with the performance goals recommended by the developers. See Table 1. Then, after consideration of the limitations (or strengths) of its particular group of students, interim goals are set for each age-grade group in the school for the ensuing year. At the end of each school year progress toward these interim goals is assessed and new goals set. In most instances the second set of goals will be somewhat higher than the first and reflect more closely the developer's projections for completion of the program goals. Additionally, there should be a closer fit between the goals projected and those attained. A school's performance should generally match the developer's target as presented in Table 1 after three to five years in the Design if its student population has a normal distribution of ability and is unencumbered by home and neighborhood social and economic problems. Note that the ultimate goals (Table 1) are expressed simply in terms of percent of children mastering all skills at a level, or "checking out" of the levels of the Design, while the interim projections are expressed as percent of skills mastered by given children at a given level.

In Table 2 the performance goals set in the fall by one school in southern Wisconsin which was using the Design are presented before the

slashes. The staff took into account the fact that about half of the student population is of low socio-economic background. They gave serious consideration to each objective in a level and estimated which of the objectives groups of children of various characteristics could master. For example, there are 13 skills at Level B. Estimating that those children of average intelligence could attain on the average 8 of the 13 skills by the end of their third year in school (Grade 2), this performance goal was set at 62%. The goals were set for the end of the first, third, fifth and seventh years since children typically spend two years in a Unit working with a team of teachers and other personnel.

At the end of the school year actual performance data were gathered, which appear immediately to the right of the slashes in Table 2. Since no children in their first year fell into the lowest IQ band, we cannot evaluate the projection in the first cell. In the other cells the performance data are remarkable for their consistency when looked at either within IQ bands across age levels or within age levels across IQ bands. In the former case higher age group within a particular IQ band outperformed the preceding age group without exception. In most cases the goals set were met and even surpassed; this was probably due in part to the fact that the school had used segments of this reading curriculum for two years. We would not usually expect so many targets to be surpassed when a school is initially implementing the Design.

An illustration of the feedback provided by the summary data at the end of the year may be found by considering the middle set of figures (those following the slashes) in the first column of Table 2. There is little variation in the performance of children in the various IQ bands. While this result may reflect the low reliability of the tests for IQ used

with this age group, it is also possible that the staff is not implementing an individualized program sufficiently well. It can also be seen in Table 2 that the instructional staff for children in their third year of school may have underestimated student capabilities since this group, particularly in Levels C and D, consistently surpassed the goals set. It was imperative then that these projections be changed significantly for these children so that expectations, particularly for the higher IQ groups, were more realistic. The new projections for this school for the 1970-71 school year are shown in parentheses and reflect modifications based on the 1969-70 results.

The performance data may also be presented in graphic form. The profiles of the four age groups for the 80-94 IQ band are shown in Figure 1, again revealing consistency across age levels. Each higher age group with the IQ band outperforms the preceding age group without exception. It is also evident that there is a good distribution of achievement and that even children of similar characteristics are spread out in attainmentof objectives. For example, children completing their fifth year have mastered all of Level A and most of Level B skills. From column 2 it may be inferred that a few are still working in Level B while most have gone on to work in Levels C or D.

Looking at the data for an age group one sees a similarly consistent profile wherein each IQ group's performance is distinct. Figure 2 illustrates the point for those completing the third year of school. Notice, however, that there was little difference between the higher two IQ groups. This tended to be true at all age levels, perhaps because the school has small numbers of pupils in the highest IQ band. The results should draw the staff's attention to the need to plan an instructional program that

is differentiated for the few above average students.

Data from third year pupils in another school are presented in Figure 3, and provide an illustration of another diagnostic. The profile of this group of children in the Level C skills suggests a graded approach to the placing of skill development; having three IQ groups spread out in Level C skills is comparable to having three groups of children working at different points in a second grade basal reader program.

Although a school staff may require assistance in interpreting such graphical representations of the data, the monitoring system itself is easily operationalized in the school setting by the teaching staff; if attainment of objectives is recorded on individual charts or on keysort cards, the calculation of the percentages is straightforward. A program is available for analysis through a system of computer management of instruction.

In initiating the system it has been suggested that targets be projected before data is collected since most school staffs who examine the behavioral objectives with care are able to judge which skills can be mastered by a particular group of children. However, an alternative approach is to collect data at the end of the first year of program implementation, and to then use it in establishing the goals in subsequent years. A school whose staff wishes to improve pupils' performance with respect to a particular priority would set higher performance goals the following year, whereas one whose self-evaluation was highly positive might retain about the same performance goals. In most instances some modifications of the performance goals should be expected on the basis of the diagnostics provided by the tabular or graphic analysis.

Finally, when the research linking the performance goals to other more familiar criteria, particularly standardized tests, is complete, perhaps the two sets of criteria can complement each other. Given a translation of performance data gathered from this new procedure to standardized test criteria and vice versa, the administrator who monitors instruction should have sufficient information to report reading progress of pupils in meaningful terms to the community as well as to measure the effectiveness of reading instruction in his school. In serving the administrator as well as the instructor, curriculum-embedded tests will then yield information which functions in program evaluation as well as individual assessment.

REFERENCE

Otto, Wayne and Askov, Eunice. The Wisconsin Design for Reading Skill Development: Rationale and Guidelines. Minneapolis: National Computer Systems, 1970.

Table 1

Projected Percent Of Children Who Should

Master All Skills At A Level:

Possible Performance Goals For A School In Which

Reading Achievement Is About At Grade Level

IQ Range	Skill Development Level	Years of School Completed				
		1	2	3	4	5
60-79	A	20	80	100	100	100
	B	0	10	40	75	100
	C			5	25	75
	D					25
80-94	A	60	100	100	100	100
	B	5	60	90	100	100
	C		5	60	90	100
	D			5	25	75
95-109	A	95	100	100	100	100
	B	20	90	100	100	100
	C		20	90	100	100
	D			20	70	95
110-140	A	100	100	100	100	100
	B	50	100	100	100	100
	C	5		100	100	100
	D			50	95	100

Table 2

Percent of Word Attack Skills Mastered at Given Levels:

Projections and Performance, Janesville Wilson School

1969-70; Projections 1970-71

IQ Range	Skill Development Level	Years of School Completed 1	3	5	7
60-79	A	42/-* (29)***	100/91 (93)	100/100 (100)	100/100 (100)
	B	0/-**(0)	42/26 (34)	70/75 (85)	84/100 (100)
	C	0/- (0)	0/0 (6)	35/28 (50)	55/88 (94)
	D	0/- (0)	0/0 (0)	0/6 (25)	14/63 (71)
80-94	A	70/54 (57)	100/97 (99)	100/100 (100)	100/100 (100)
	B	7/2 (8)	52/54 (69)	91/93 (100)	100/100 (100)
	C	0/0 (0)	0/27 (44)	35/62 (100)	70/99 (100)
	D	0/0 (0)	0/4 (6)	14/26 (57)	56/81 (100)
95-109	A	84/64 (88)	100/100(100)	100/100 (100)	100/100 (100)
	B	14/2 (23)	63/77 (77)	100/99 (100)	100/100 (100)
	C	0/0 (6)	21/53 (66)	80/93 (100)	100/100 (100)
	D	0/0 (0)	0/14 (14)	70/49 (95)	84/93 (100)
110-140	A	100/73 (100)	100/100(100)	100/100 (100)	100/100 (100)
	B	21/5 (38)	77/81 (96)	100/100 (100)	100/100 (100)
	C	0/0 (11)	21/59 (91)	100/97 (100)	100/100 (100)
	D	0/0 (0)	7/16 (43)	100/69 (100)	100/96 (100)

* Projected Percent of Mastery/Actual Performance
** Indicates no subjects in this category
*** 1970-71 projections

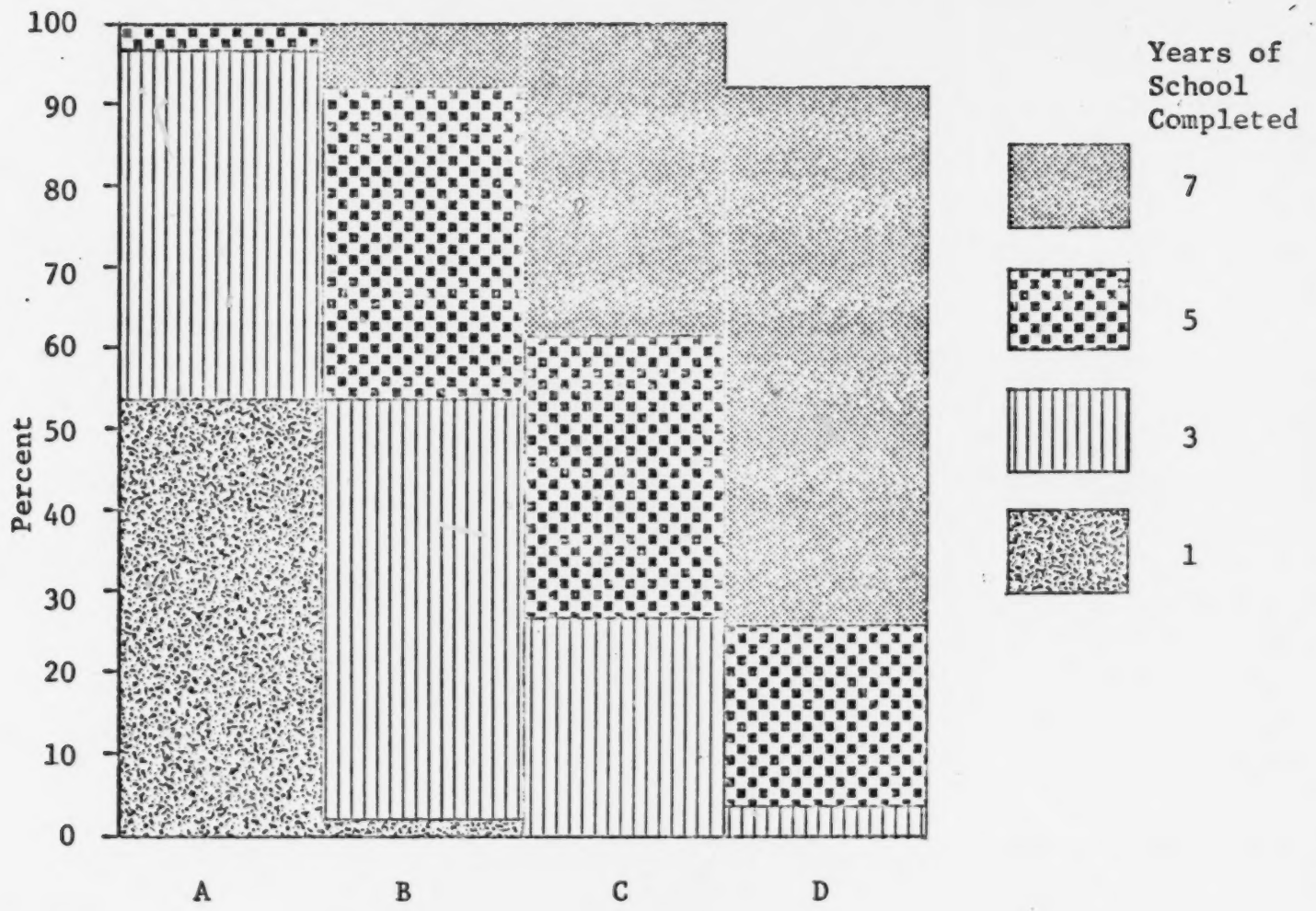

Figure 1 Percent of mastery of reading skill for 4 age-grade groups whose IQ ranges from 80-94

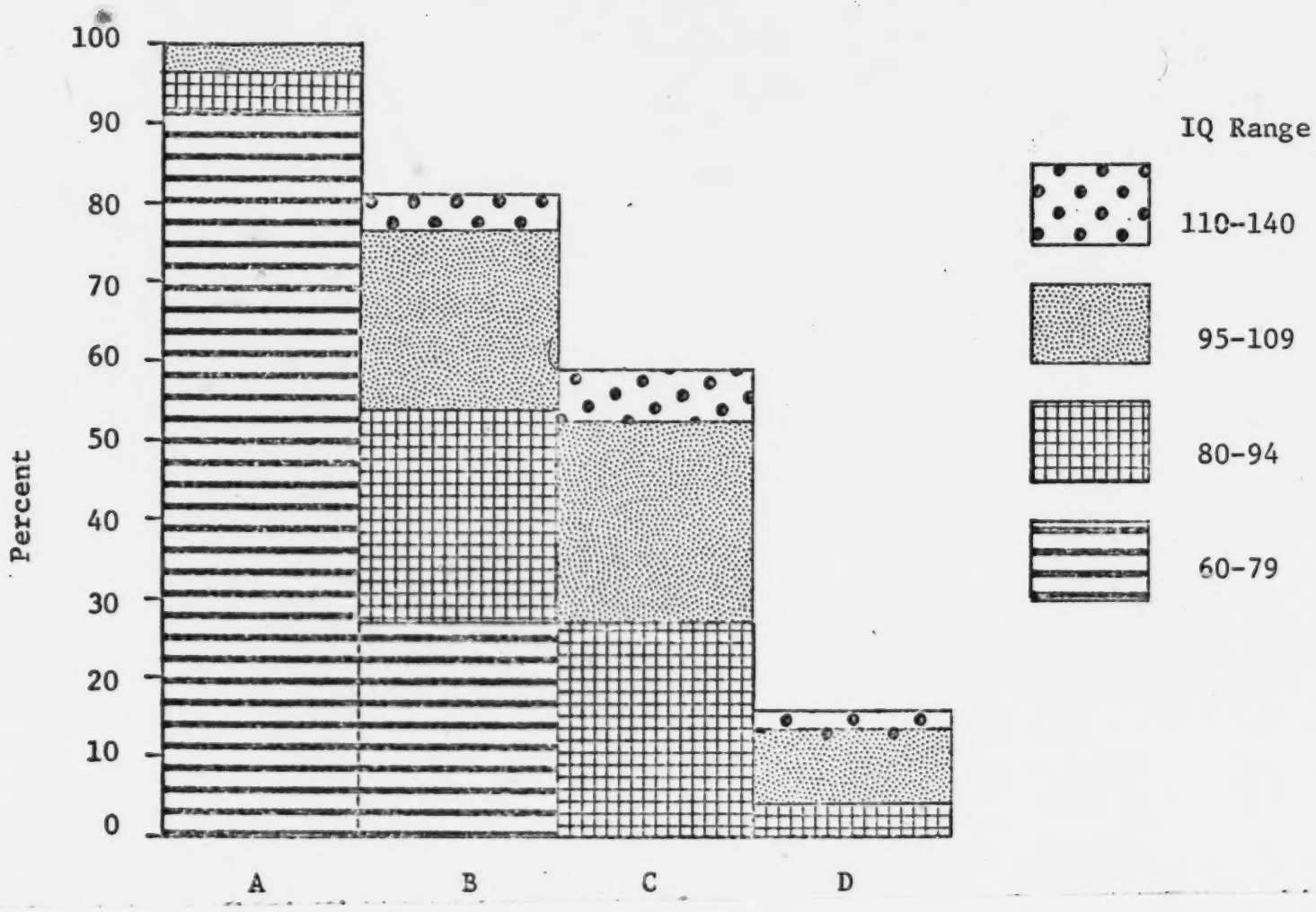

Figure 2 Percent of reading skill mastery for 4 IQ groups the end of the third year of school

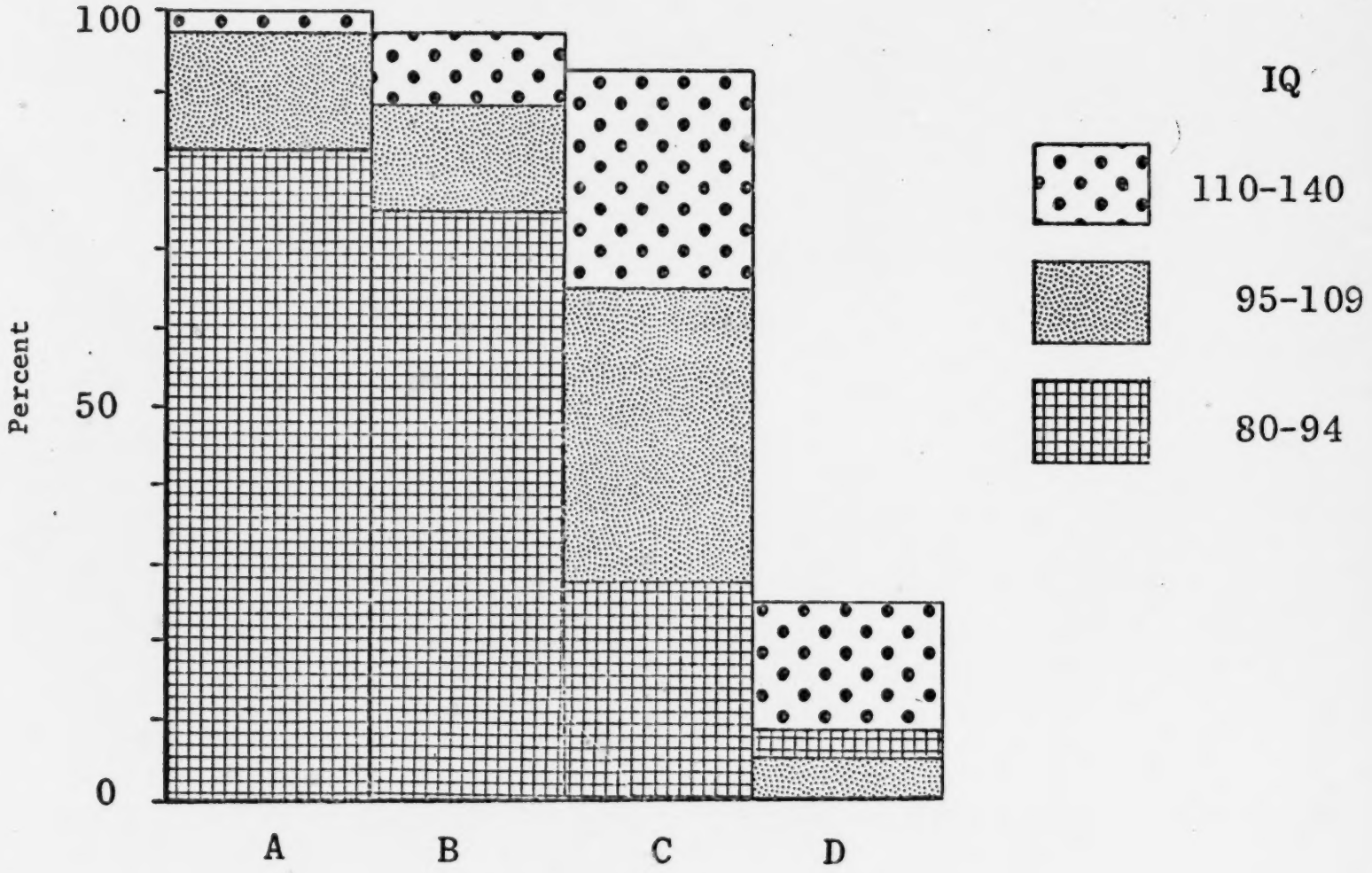

Figure 3 Percent of Reading Skill Mastery for 3 IQ Groups at the End of the Third Year of School